

REMARKS/ARGUMENTS

Claims 1–13 and 15 are currently pending. Applicants have amended claims 9, 12 and 13. Claim 14 previously was canceled. No new matter has been added.

Claim Objections

The Examiner objects to claim 12 under 37 CFR 1.75(c) for failing to further limit the subject matter of claim 10, upon which it depends. Applicants amend claim 12 to delete 4-(2-oxo-1,3-dioxolan-4-yl)butyl methacrylate, at the Examiners helpful suggestion, in order to remove the objectionable claim element. In view of the amendment, Applicants respectfully request that the Examiner withdraw his objection.

Rejections under 35 U.S.C. § 102

The Examiner rejects claims 10–12 under 35 U.S.C. § 102(b) as anticipated by Kuwana et al. (JP 2003/012725; machine translation), relying on their alleged teaching of 4-(2-oxo-1,3-dioxolan-4-yl) butyl methacrylate [¶0018]. Applicants are unable to discern the teaching of this compound in Kuwana et al. in ¶0018. Kuwana et al. do teach in [¶0018] butyl (2-oxo-dioxolan-4-yl) (meth)acrylate, wherein the 2-oxo-1,3-dioxolan is ether-linked directly to the (meth)acrylate, but Applicants' formula I requires that R be at least a C1-alkylene, thus precluding this direct ether linkage. Moreover, claims 10 and 12 claim only acrylates and methacryloyloxy-alkyl-urethanes, and do not encompass methacrylates, including 4-(2-oxo-1,3-dioxolan-4-yl) butyl methacrylate, within their scope. Kuwana et al. do not teach acrylates and methacryloyloxy-alkyl-urethanes, nor do they disclose the compounds of formulas I or II.

As the Examiner correctly notes, claim 11 is only applicable to compounds wherein X of claim 10 is CO-NH-R¹, such that R¹ is optional. The requirement for the group CO-NH-R¹, alone excludes 4-(2-oxo-1,3-dioxolan-4-yl) butyl methacrylate from the scope of claim 11, notwithstanding the definitions of R¹ that claim 11 permits. Kuwana et al. do not disclose any compound where the equivalent of X can be CO-NH-R¹. Claim 12 has been amended in response to the Examiner's objection, discussed above, such that 4-(2-oxo-1,3-dioxolan-4-yl) butyl methacrylate is not within the group of specific compounds claimed.

Accordingly, Kuwana et al. do not anticipate claims 10–12 because, even if the reference were to disclose 4-(2-oxo-1,3-dioxolan-4-yl) butyl methacrylate, no compound in [¶0018] of the reference falls within the scope of any of these claims. Applicants respectfully request that the Examiner withdraw his rejection of claims 10–12 as anticipated by Kuwana et al.

Rejections under 35 U.S.C. § 103

Claims 1–3, 6–8, 13 and 15 are rejected by the Examiner as unpatentable under 35 U.S.C. § 103(a) over Pardoen et al. (US 2004/0127608) in view of Fukada et al. (US 2003/0134926).

Fukada et al. discloses methacrylates (Fukada, column 9, [0081], whereas Applicants disclose, in relevant part, acrylates, not methacrylates. As to claim 1, combining the teachings of Pardoen et al. of a process using cyclic carbonates with the teachings of Fukada et al. of using 2-oxo-1,3-dioxolan-4-yl-methyl acrylate as a cross-linker leads to a process using methacrylate derivatives of cyclic carbonates, not to the process claimed by Applicants of reacting a substrate with a compound of formula I or II of claim 1. Simply, the reactants are different. Accordingly, neither Pardoen et al. nor Fukada et al. contemplate the process of claim 1, nor would the skilled artisan, given this art. Because the process of claim 1 and the processes relied upon by the Examiner in the cited art are distinct, Applicants' process would not be obvious to the person of ordinary skill in the art.

Since the process of claim 1 would not be obvious for the reasons cited above, it follows that claims 2–3, 6–8, 13 and 15 likewise would not be obvious to the skilled artisan. As to claims 2–3, while Pardoen et al. disclose a polymer, the use of, and the motivation to use, a polymer in Applicants' process would not be obvious, since Applicant's process is not obvious. The same lack of obviousness would be the case with claims 7–8, 13 and 15; the process is not obvious, so components of the process are not obvious.

Applicants respectfully disagree with the Examiner in his appraisal of Pardoen et al.'s disclosure at [0029] regarding claim 6. Contrary to the Examiner's view, Pardoen et al. do not teach reacting a second end of the compound with a polymer, but, rather, reacting the end stemming from ring-opening of the cyclic carbonate, as shown in formula II at [0027]. Opening the ring of a cyclic carbonate results in a compound with X = H, and it is only this moiety that is

reacted further with epoxides, lactones, cyclic carbonates, hydroxyl acids and so forth, as Pardoen et al. explain at [0030].

The Examiner rejects claims 4–5 as unpatentable under 35 U.S.C. § 103(a) over Pardoen et al. (US 2004/0127608) in view of Fukada et al. (US 2003/0134926) as applied to claim 3, further in view of Van Holen (US 2004/0236119) and Jansen et al (US 2003/0149127).

Applicants repeat their argument that combining the teachings of Pardoen et al. of a process using cyclic carbonates with the teachings of Fukada et al. of using 2-oxo-1,3-dioxolan-4-yl-methyl acrylate as a cross-linker leads to a process using methacrylate derivatives of cyclic carbonates, not to the process claimed by Applicants of reacting a substrate with a compound of formula I or II of claim 1. Moreover, the Van Holen reference (US 2004/0236119) discloses in formula (I) in paragraph [0018] the attachment of an ammonium group to a cyclic carbonate via a methylene bridge, whereas in claim 4 of the instant application, the ammonium group is attached via the bridge, -CO-NH-alkyl-. Accordingly, combining Pardoen with Van Holen does not lead to the process involving the compounds claimed in claims 4 and 5. In view of the above, combining the urethane linkage of Jansen et al. is moot.

Claims 1–3, 6–8, 13 and 15 also are rejected by the Examiner as unpatentable under 35 U.S.C. § 103(a) over Pardoen et al. (US 2004/0127608) in view of Kuwana et al. (JP 2003/012725; machine translation), as evidenced by Fukada et al. (US 2003/0134926). The Examiner relies on the alleged teaching by Kuwana et al. of 4-(2-oxo-1,3-dioxolan-4-yl) butyl methacrylate [¶0018]. As is noted of claims 10–12 in the above discussion of anticipation by Kuwana et al., and of claims 1–3, 6–8, 13 and 15 in the discussion of obviousness over Pardoen et al. in view of Fukada et al., claims 1–3, 6–8, 13 and 15 here do not encompass any methacrylate compound. Moreover, Kuwana et al. do teach in [¶0018] butyl (2-oxo-dioxolan-4-yl) (meth)acrylate, wherein the 2-oxo-1,3-dioxolan is ether-linked directly to the (meth)acrylate. Applicants' formula I requires that R be at least a C1-alkylene, thus precluding this direct ether linkage from within the scope of Applicants' claims. Because the compounds disclosed by Kuwana et al. are distinct from Applicants' compounds, the person of ordinary skill in the art would not look, nor be motivated to look, to the compounds disclosed by Kuwana et al., even in combination with the process of Pardoen et al., in trying to develop a process for modifying a

substrate with 4-(2-oxo-1,3-dioxolan-4-yl) butyl acrylate or any of Applicants' compounds disclosed in formulas I or II of claim 1. For these reasons, the Examiner's rejection of claims 2–3, 6–8, 13 and 15 are moot, since these claims would not have been obvious, despite the disclosure of Pardoen et al. of polyamines [¶0014–16] with reference to claims 2–3 and 7–8, combination with a matrix-compatible moiety [¶0029] with reference to claim 6, and a polyamine used as a dispersant [¶0001]. Moreover, regarding claim 6, Applicants repeat their argument that Pardoen et al. do not teach reacting a second end of the compound with a polymer, but, rather, reacting the end stemming from ring-opening of the cyclic carbonate, as shown in formula II at [0027]. Opening the ring of a cyclic carbonate results in a compound with X = H, and it is only this moiety that is reacted further with epoxides, lactones, cyclic carbonates, hydroxyl acids and so forth, as Pardoen et al. explain at [0030].

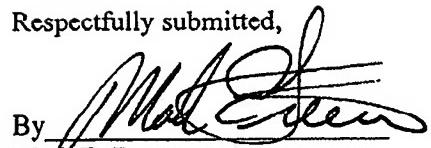
In view of the above demonstration that no reference or combination of references renders any claim of the instant application obvious, Applicants respectfully request that the Examiner withdraw his rejection of claims 1–13 and 15 as obvious under 35 U.S.C. § 103(a) over the various references cited by the Examiner and in the above discussion.

CONCLUSION

Applicants believe the above amendments and arguments are fully responsive to the Examiner's objections and rejections, and place this application into condition for allowance. For at least the reasons detailed herein, Applicants respectfully request withdrawal of all objections and rejections, and allowance of all pending claims.

Applicants believe no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 03-2775, under Order No. 13744-00046-US from which the undersigned is authorized to draw.

Respectfully submitted,

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